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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/760,276 | 01/21/2004 | Min-soo Kim | 249/444 | 1403 |
| 27849 7590 04/29/2008 LEE & MORSE, P.C. 3141 FAIRVIEW PARK DRIVE SUITE 500 FALLS CHURCH, VA 22042 | | | | |
| EXAMINER LEBRON, JANNELLE M | | | | |
| ART UNIT | | PAPER NUMBER | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/760,276

Applicant(s)

KIM ET AL.

Examiner

JANNELLE M. LEBRON

Art Unit

2861

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) 9-18 and 27-35 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-8 and 36-40 is/are allowed.
- 6) ☒ Claim(s) 19 and 20 is/are rejected.
- 7) ☒ Claim(s) 21-26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 19 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Suzuki (US 2002/0060704).

Suzuki discloses the following claimed limitations:

Claim 19: an ink-jet printhead, comprising:

a manifold (44 in figs. 2A-3B) on a substrate;

a barrier layer (10 in figs. 2A-3B) on the substrate;

a nozzle plate on the barrier layer (34 in figs. 2A-3B), the nozzle plate including a nozzle (32 in figs. 2A-3B);

an ink chamber (16 in figs. 2A-3B) between the barrier layer and the nozzle plate;

an ink channel (48 in figs. 2A-3B) on the barrier layer and in communication with the ink chamber and the manifold;

a volumetric structure (50), in communication with an ink flow (as seen in figs. 2A-3B), the volumetric structure being sensitive to an external stimulus

(voltage) and being capable of varying in size (expands) to eject the ink droplet through the nozzle (32; paragraph 0019); and

a stimulus generator (70 in fig.6), which applies a stimulus to the volumetric structure to vary a size of the volumetric structure (paragraph 0022).

Claim 20: wherein the volumetric structure (50) expands in size to eject the ink droplet through the nozzle (32), and the stimulus generator (70) applies the stimulus to the volumetric structure to expand the size of the volumetric structure (paragraph 0019).

Allowable Subject Matter

3. Claims 1-8 and 36-40 allowed.
4. Claims 21-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
5. The following is a statement of reasons for the indication of allowable subject matter:

The primary reason for allowance for claims 1-8 and 36-40 is the inclusion of the limitations of a droplet ejector that includes a volumetric structure having a predetermined volumetric size, the predetermined volumetric size being contained entirely within the fluid path, the volumetric structure being sensitive to an external stimulus and being capable of varying the predetermined volumetric size in at least two

directions simultaneously to eject a droplet of the fluid through the nozzle. It is this limitation found in the claims, as it is claimed in the combination of that has not been found, taught or suggested by the prior art of record, which makes these claims allowable over the prior art.

The primary reason for indicating allowable subject matter for claim 21-26 is the inclusion of the limitations of a droplet ejector that includes a volumetric structure that is formed of stimulus sensitive hydrogel. It is this limitation found in the claims, as it is claimed in the combination of that has not been found, taught or suggested by the prior art of record, which makes these claims allowable over the prior art.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Communication with the USPTO

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JANNELLE M. LEBRON whose telephone number is (571)272-2729. The examiner can normally be reached on Monday thru Friday 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Luu can be reached on (571) 272-7663. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jannelle M. Lebron/
Examiner, Art Unit 2861

/K. Feggins/
Primary Examiner, Art Unit 2861

